

## CLAIMS:

1. A dual-stack optical data storage medium (10) for write-once recording using a focused radiation beam (9) having a wavelength  $\lambda$  of approximately 655 nm and entering through an entrance face (8) of the medium (10) during recording, comprising:

- at least one substrate (1, 7) with present on a side thereof:  
5 - a first recording stack (6), named L0, comprising a write-once type L0 recording layer, said first recording stack L0 having an optical reflection value  $R_{L0}$  and an optical transmission value  $T_{L0}$ ,

- a second recording stack (3), named L1, comprising a write-once type L1 recording layer, said second recording stack L1 having an effective optical reflection value  
10  $R_{L1\text{eff}}$ ,

said first recording stack being present at a position closer to the entrance face than the second recording stack,

- a transparent spacer layer (4) sandwiched between the recording stacks (3, 6), characterized in that

15  $0.12 \leq R_{L0} \leq 0.18$  and  $0.12 \leq R_{L1\text{eff}} \leq 0.18$ .

2. A dual-stack optical data storage medium as claimed in claim 1, wherein  
20  $0.15 \leq R_{L0} \leq 0.18$  and  $0.15 \leq R_{L1\text{eff}} \leq 0.18$ .

25 3. A dual-stack optical data storage medium as claimed in any one of claims 1 or 2, wherein  $R_{L0}$  is substantially equal to  $R_{L1\text{eff}}$ .

4. A dual-stack optical data storage medium as claimed in any one of claims 1, 2 or 3, wherein the first recording stack comprises a first reflective layer (5) with a thickness  
25  $d_{L0M}$  and an absorption coefficient  $k_{L0M}$  and the L0 recording layer has an absorption coefficient  $k_{L0R}$  and a thickness  $d_{L0R}$  and where  
$$(k_{L0R} * d_{L0R} + k_{L0M} * d_{L0M}) < 0.08 * \lambda$$

5. A dual-stack optical data storage medium as claimed in any one of claims 1, 2, 3 or 4, wherein the second recording stack comprises a second reflective layer (2) and the L1 recording layer has an absorption coefficient  $k_{L1R}$  and where the intrinsic reflection  $R_{L1}$  of the second recording stack is in the range 0.30 – 0.60 and where  $0.075 < k_{L1R} < 0.25$ .

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6. A dual-stack optical data storage medium as claimed in any one of claims 4 or 5, wherein the first reflective layer (5) has a thickness  $d_{L0M} \leq 16$  nm and mainly comprises one selected from Ag, Au or Cu.

10 7. A dual-stack optical data storage medium as claimed in claim 6, wherein the first reflective layer (5) has a thickness  $d_{L0M} \leq 12$  nm.

8. A dual-stack optical data storage medium as claimed in any one of claims 1 - 7, wherein  $k_{L0R} > 0.025$ .

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9. A dual-stack optical data storage medium as claimed in claim 8, wherein  $k_{L0R} > 0.050$

10. A dual-stack optical data storage medium as claimed in any one of claims 1 to 20 9, wherein a guide groove (G) for L1 is provided in the transparent spacer layer (4).

11. A dual stack optical data storage medium as claimed in any one of claims 1 to 9, wherein a guide groove (G) for L1 is provided in the substrate (1).